

Amendment Under 37 C.F.R. § 1.111
U.S. Application No.: 09/822,310

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have been written, a file that should be stored subsequently is written in the remaining empty areas in such a condition that data are divided into small discontinuous fragments, not written in a single continuous area. When the files of which data are stored in divided areas are read out, an access speed to those files is inevitably lowered.

Page 2, second full paragraph bridging pages 2 and 3:

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However, when executing the defragmenting process in the hard disk mounted in a navigation system, there is a fear that there may occur various types of interference with the performance of the defragmenting process, like cases that an engine stops in the course of execution of the defragmenting process, or reading out map data from the hard disk, becomes necessary, because the navigation is started. It is difficult for users to predict by themselves such occasions of interference before or after starting the defragmenting process, thus being much burden on users. The defragmenting process is no longer done effectively in the hard disk, thus it takes much time to read files of map data. There is a problem that a merit of a hard disk, which is inherently high is access speed, cannot sufficiently be utilized for navigation which should be performed at a higher speed.

IN THE CLAIMS:

Please enter the following amended claims:

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5. (Once amended) The navigation system according to claim 1, further comprising an operation device with which executing the defragmenting processing in the storage device is

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Amendment Under 37 C.F.R. § 1.111
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able to be ordered, wherein the defragmenting processing device performs the defragmenting processing in response to the instruction of execution from the operation device.

8. (Once amended) A navigation system performing navigation based on a detected current position and map data, the navigation system comprising:

a storage device, which is nonvolatile, from and into which files of map data are able to be read and written;

a navigation control device for controlling a navigation operation using the map data; and

a defragmenting processing device for performing a defragmenting processing with the storage device at a predetermined time,

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wherein the defragmenting processing device interrupts the defragmenting processing if a given condition is fulfilled during executing the defragmenting processing,

wherein the defragmenting processing device preserves defragmenting progress data indicative of a progress condition of the defragmenting processing if the defragmenting processing under performance is interrupted, and

wherein the navigation system further comprises an engine sensor for detecting an operated state of an engine of a vehicle, wherein the defragmenting processing device not only monitors an output of the engine sensor during executing the defragmenting processing but also interrupts the defragmenting processing in response to a stop of the engine.

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10. (Once amended) A navigation system performing navigation based on a detected current position and map data, the navigation system comprising:

a storage device, which is nonvolatile, from and into which files of map data are able to be read and written;

a navigation control device for controlling a navigation operation using the map data; and

a defragmenting processing device for performing a defragmenting processing with the storage device at a predetermined time,

wherein the defragmenting processing device interrupts the defragmenting processing if a given condition is fulfilled during executing the defragmenting processing,

wherein the defragmenting processing device preserves defragmenting progress data indicative of a progress condition of the defragmenting processing if the defragmenting processing under performance is interrupted, and

wherein the defragmenting processing device interrupts the defragmenting processing when the navigation is activated during execution of the defragmenting processing.

11. (Once amended) A navigation system performing navigation based on a detected current position and map data, the navigation system comprising:

a storage device, which is nonvolatile, from and into which files of map data are able to be read and written;

a navigation control device for controlling a navigation operation using the map data;

a defragmenting processing device for performing a defragmenting processing with the storage device at a predetermined time;

an operation device with which executing the defragmenting processing in the storage device is able to be ordered, wherein the defragmenting processing device performs the

defragmenting processing in response to the instruction of execution from the operation device;
and

a readout device for reading out the map data from a recording medium in which the map data are recorded,

wherein the navigation control device executes a navigating operation based on the map data read out by the readout device when the navigation is under operation based on the map data stored in the storage device at a time when the execution of the defragmenting processing is ordered by the operation device, and

the defragmenting processing device executes the defragmenting processing in the recording medium.

12. (Once amended) A navigation system performing navigation based on a detected current position and map data, the navigation system comprising:

a storage device, which is nonvolatile, from and into which files of map data are able to be read and written;

a navigation control device for controlling a navigation operation using the map data;

a defragmenting processing device for performing a defragmenting processing with the storage device at a predetermined time;

an operation device with which executing the defragmenting processing in the storage device is able to be ordered, wherein the defragmenting processing device performs the defragmenting processing in response to the instruction of execution from the operation device;

a readout device for reading out the map data from a recording medium in which the map data are recorded; and

an ordering device for ordering execution of a navigating operation,

wherein the navigation control device executes the navigating operation based on the map data read out by the readout device when activation of the navigating operation is ordered by the ordering device during the defragmenting processing in the storage device by the defragmenting processing device.

13. (Once amended) A navigation system performing navigation based on a detected current position and map data, the navigation system comprising:

a storage device, which is nonvolatile, from and into which files of map data are able to be read and written;

a navigation control device for controlling a navigation operation using the map data;

a defragmenting processing device for performing a defragmenting processing with the storage device at a predetermined time,

an operation device with which executing the defragmenting processing in the storage device is able to be ordered, wherein the defragmenting processing device performs the defragmenting processing in response to the instruction of execution from the operation device;

a readout device for reading out the map data from a recording medium in which the map data are recorded; and

an ordering device for ordering execution of a navigating operation,

wherein the defragmenting processing device interrupts a defragmenting operation when the recording medium is unloaded in the readout device as well as activation of the navigating operation is ordered by the ordering device during the defragmenting processing in the storage device by the defragmenting processing device.

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14. (Once amended) The navigation system according to claim 13, wherein the navigation control device issues a message, after the interruption of the defragmenting processing, for urging a user to load the recording medium in which necessary map data are recorded, and the defragmenting processing device restarts the defragmenting processing based on the defragmenting progress data at a time when the recording medium is loaded.

Please add the following new claims:

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17. (New) A navigation apparatus performing a navigation operation based on a current position and map data, the navigation apparatus comprising:
a recording medium which stores map data, and
a controller which controls the navigation operation based on the map data,
wherein the controller perform a defragment operation for the recording medium at a first predetermined condition and stops the defragment operation at a second predetermined condition.

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18. (New) A navigation apparatus according to claim 17, wherein audio data is to be stored in the recording medium.

19. (New) A navigation apparatus according to claim 17, wherein the first predetermined condition is a condition of no navigation operation.

20. (New) A navigation apparatus according to claim 17, wherein the first predetermined condition is a condition that a user instructs the defragment operation.

21. (New) A navigation apparatus according to claim 17, wherein the second predetermined condition is a condition that the defragment operation is completed.

22. (New) A navigation apparatus according to claim 17, wherein the second predetermined condition is a condition of an engine stop of a vehicle in which the navigation apparatus is installed.

23. (New) A navigation method performing a navigation operation based on a current position and map data, the navigation method comprising;
performing the navigation operation based on the map data stored in a recording medium,
performing a defragment operation at a first predetermined condition, and
stopping the defragment operation at a second predetermined condition.

24. (New) A navigation method according to claim 23, wherein audio data is to be stored in the recording medium.